

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 3-6, 11, 16-18, 20-22, 24-25, 28, 31-32, 35, 39-40, 43-44, 47, 50-53, 55 and 58-62 are amended.

Listing of Claims:

1. (Original) An electroconductive textile comprising:
a non-conductive textile,
a macromolecular template which is bonded to or entrapped in the non-conductive textile, and
a conductive polymer which is ordered by and bonded to the macromolecular template; such that the macromolecular template binds the conductive polymer to the non-conductive textile.
2. (Original) The electroconductive textile of claim 1, wherein the conductive polymer is an oxidatively polymerised conductive polymer.
3. (Currently Amended) The electroconductive textile of claim 1 ~~or claim 2~~, wherein the conductive polymer is selected from polypyrrole and its derivatives, polythiophene and its derivatives, phenyl mercaptan and its derivatives, and polyaniline and its derivatives, polyindole and its deriviates, polycarbazole and its derivatives, or copolymers or combinations thereof.
4. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 3~~ claim 1, wherein the conductive polymer is associated with one or more dopants or doping agents.
5. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 4~~ claim 1, wherein the dopant or doping agent is derived from a strong acid, the macromolecular template or an oxidizing agent.

6. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 5~~ claim 1, wherein the macromolecular template is a conductive macromolecular template.
7. (Original) The electroconductive textile claim 6, wherein the conductive macromolecular template is a conductive polymeric molecular template.
8. (Original) The electroconductive textile of claim 7, wherein the conductive polymeric molecular template contains one or more acid, ester or salt (electrolyte) groups, or derivatives thereof.
9. (Original) The electroconductive textile of claim 7, wherein the conductive polymeric molecular template contains sulfate, sulfonate, carboxylate, phosphonate, nitrate, or amide groups or acid equivalents thereof.
10. (Original) The electroconductive textile of claim 7, wherein the conductive polymeric molecular template is sulfonated or sulfated.
11. (Currently Amended) The electroconductive textile of ~~any one of claims 7 to 10~~ claim 7, wherein the conductive macromolecular template is selected from sulfonated polyanilines, sulfonated polypyrroles, and sulfonated polythiophenes, and derivatives thereof.
12. (Original) The electroconductive textile of claim 11, wherein the conductive polymer molecular template contains one or more functional groups selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, halo, haloalkyl, haloalkenyl, haloalkynyl, haloaryl, hydroxy, alkoxy, alkenyloxy, aryloxy, benzyloxy, haloalkoxy, haloalkenyloxy, haloaryloxy, nitro, nitroalkyl, nitroalkenyl, nitroalkynyl, nitroaryl, nitroheterocycl, amino, alkylamino, dialkylamino, alkenylamino, alkynylamino, arylamino, diarylamino, benzylamino, dibenzylamino, acyl, alkenylacyl, alkynylacyl, arylacyl, acylamino, diacylamino, acyloxy, alkylsulfphonyloxy, arylsulfphonyloxy, heterocycl, heterocycloxy, heterocyclamino, haloheterocycl, alkylsulfphenyl, arylsulfphenyl, carboalkoxy, carboaryloxy, mercapto, alkylthio, benzylthio and acylthio.

13. (Original) The electroconductive textile of claim 7, wherein the macromolecular template is poly 2-methoxyaniline-5-sulfonic acid (PMAS).

14. (Original) The electroconductive textile of claim 7, wherein the macromolecular template is a cationic macromolecular template and the conductive polymer is an anionic conductive polymer.

15. (Original) The electroconductive textile of claim 7 wherein the macromolecular template is an anionic macromolecular template and the conductive polymer is a cationic conductive polymer.

16. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 15~~ claim 1, wherein the macromolecular template is a polyelectrolytic molecular template.

17. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 16~~ claim 1, wherein the macromolecular template provides an environment for facile oxidation of polymer subunits that form the conductive polymer.

18. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 5~~ claim 1, wherein the macromolecular template is non-conductive.

19. (Original) The electroconductive textile of claim 18, wherein the macromolecular template is selected from the group of substances consisting of: polyvinylsulfonate, polystyrene sulfonate, biologically active polymers, chondroitin sulfate and dextran sulfate, multicharged ions such as calixarenes, cyclodextrins, polymeric textile dyestuffs thermally sensitive polyelectrolytes, redox containing polyelectrolytes, UV absorbers, fluorescent whitening agents, natural and synthetic tanning agents, lignin and its derivatives, stain blocking agents and shrinkproofing polymers, with the proviso that the substance functions as molecular template by providing a template upon which, or in relation to which, polymer subunits of the conductive

polymer preferentially align to induce orientation of the subunits for forming the conductive polymer, and bonds to or is entrapped within the non-conductive textile.

20. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 5~~ claim 1, wherein:

the macromolecular template is selected from the group consisting of sulfonated polyanilines or derivatives thereof, sulfonated polystyrenes or derivatives thereof, dextran sulfate, calixarenes, cyclodextrins and derivatives thereof, synthetic tanning agents based upon sulfonated polycondensation products derived from aromatic sulfonic acids or sulfones and formaldehyde, synthetic tanning agents based upon polyacrylic-acid or salts or esters thereof, polypropylene oxide polyurethane shrinkproofing polymers containing reactive carbamoyl sulfonate groups, sulfonated polypyrroles or derivatives thereof, sulfonated polythiophenes or derivatives thereof, and copolymers or mixtures of any of the above; and

the conductive polymer is selected from the group consisting of polyaniline, polypyrrole, polythiophene, polyphenyl mercaptan polyindole, polycarbazole or derivatives or a copolymer or combination thereof.

21. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 20~~ claim 1, wherein the non-conductive textile contains no functionalisation which would enable a reaction forming a covalent bond between the textile and the macromolecular template, and contains no phosphorylation.

22. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 21~~ claim 1, wherein the non-conductive textile is formed from natural or synthetic fibers, or a combination thereof.

23. (Original) The electroconductive textile of claim 22, wherein the non-conductive textile contains natural fibres.

24. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 23~~ claim 1, wherein the electroconductive textile contains no curing binder.

25. (Currently Amended) The electroconductive textile of ~~any one of claims 1 to 24~~ claim 1, comprising one or more further layers of conductive polymer.

26. (Original) A method for preparing an electroconductive textile from a non-conductive textile and polymer subunits which, when polymerised, form a conductive polymer, the method comprising the steps of:

(i) polymerising the polymer subunits in the presence of a macromolecular template to form the conductive polymer bound to the macromolecular template; and

(ii) contacting the macromolecular template with the non-conductive textile to effect bonding of the macromolecular template to the non-conductive textile.

27. (Original) The method of claim 26, wherein the macromolecular template is contacted with the non-conductive textile by padding, exhaustion, printing or coating techniques.

28. (Currently Amended) The method of claim 26 ~~or claim 27~~, wherein the macromolecular template is applied in an amount of between 0.1 and 50% on mass of fabric.

29. (Original) The method of claim 28, wherein the macromolecular template is contacted with the non-conductive textile in an amount of 3-20% on mass of fabric.

30. (Original) The method of claim 28, wherein the macromolecular template is applied to the non-conductive textile in an amount of between 5 and 10% on mass of fabric.

31. (Currently Amended) The method of ~~any one of claims 26 to 30~~ claim 26, wherein, prior to step (ii), the non-conductive textile is contacted with surfactant.

32. (Currently Amended) The method of ~~any one of claims 26 to 31~~ claim 26, wherein step (ii) comprises contacting a solution of the macromolecular template with the non-conductive textile at an initial solution pH of between 1.0-9.0.

33. (Original) The method of claim 32, wherein the initial solution pH is between 1.0-2.7.
34. (Original) The method of claim 32, wherein the initial solution pH is between 1.4 – 1.8.
35. (Currently Amended) The method of ~~any one of claims 26 to 34~~ claim 26, wherein step (ii) comprises contacting a solution of the macromolecular template with the non-conductive textile at a temperature of between 20 and 130°C.
36. (Original) The method of claim 35, wherein step (ii) is conducted by the exhaust technique.
37. (Original) The method of claim 36, wherein the contact temperature is between 60 and 100°C, and the time of contact is a period of at least 30 minutes.
38. (Original) The method of claim 36, wherein the contact temperature is between 80 and 100°C.
39. (Currently Amended) The method of claim 37 ~~or claim 38~~, wherein the time of contact is at least 3 hours.
40. (Currently Amended) The method of ~~any one of claims 26 to 35~~ claim 26, wherein step (ii) is conducted by the padding technique.
41. (Original) The method of claim 40, wherein step (ii) comprises contacting a padding liquid containing 20-200 grams/litre of the molecular template with the non-conductive textile.
42. (Original) The method of claim 41, wherein the pH of the padding liquid is between 1.0 – 1.8.
43. (Currently Amended) The method of claim 41 ~~or 42~~, wherein step (ii) effects application of between 5 and 50% of the macromolecular template on mass of the fabric.

44. (Currently Amended) The method of ~~any one of claims 26 to 43~~ claim 26, wherein the method comprises the steps of:

- (a) contacting the macromolecular template with the non-conductive textile to effect bonding of the macromolecular template to the non-conductive textile, and
- (b) contacting the polymer subunits with the macromolecular template bound to the non-conductive textile, and polymerising the polymer subunits to form the conductive polymer bound to the macromolecular template and to the non-conductive textile via the macromolecular template.

45. (Original) The method of claim 44, wherein the polymer subunits are polymerised by adding an oxidizing agent.

46. (Original) The method of claim 45, wherein the molar ratio of the polymer sub units to the oxidant is between 1:0.16 and 1:0.5.

47. (Currently Amended) The method of ~~claims 44 to 46~~ claim 46, wherein a solution of the polymer subunits is contacted with the molecular template bound to the non-conductive textile, and the pH during contacting stage (b) is between 1.1 – 4.0.

48. (Original) The method of claim 47, wherein the pH of contacting step (b) is between 1.1 – 2.4.

49. (Original) The method of claim 47, wherein the pH of the contacting step (b) is between 1.1 – 1.8.

50. (Currently Amended) The method of ~~any one of claims 44 to 49~~ claim 44, wherein the polymer subunits are polymerized at ambient temperature.

51. (Currently Amended) The method of ~~any one of claims 26 to 50~~ claim 26, wherein the molar ratio of macromolecular template to the polymer subunits is between 1:1 and 1:40.

52. (Currently Amended) The method of claim 51, wherein the molar ratio is about 1:2.

53. (Currently Amended) The method of ~~any one of claims 26 to 43~~ claim 26, wherein the method comprises the steps of:

- (a) contacting the non-conductive textile, the macromolecular template and the polymer subunits with one another to effect bonding of the macromolecular template to the non-conductive textile, and bonding of the macromolecular template to the polymer subunits, and
- (b) polymerising the polymer subunits to form the conductive polymer which is bound to the non-conductive textile via the macromolecular template.

54. (Original) The method of claim 53, wherein step (a) involves contacting a solution of the macromolecular template and the polymer subunits with the non-conductive textile, and step (b) comprises the addition of an oxidant to the solution containing the non-conductive textile.

55. (Currently Amended) The method of ~~any one of claims 26 to 43~~ claim 26, wherein the method comprises the steps of:

- (a) contacting the macromolecular template with the polymer subunits and polymerising the polymer subunits to form the conductive polymer bound to the macromolecular template, and
- (b) contacting the macromolecular template with the non-conductive textile to effect bonding of the macromolecular template to the non-conductive textile, with the conductive polymer bound to the non-conductive textile via the macromolecular template.

56. (Original) The method of claim 55, wherein step (a) comprises forming an aqueous solution of the macromolecular template and the polymer subunits, reducing the pH of the solution to a value between 1.1 – 2.4, and contacting the solution with an oxidant.

57. (Original) The method of claim 56, wherein the molar ratio of polymer subunits to oxidant is between 2:1 and 1:1.

58. (Currently Amended) The method of ~~any one of claims 55 to 57~~ claim 55, wherein the molar ratio of macromolecular template to polymer subunits is between 1:1 – 1:4.

59. (Currently Amended) The method of ~~any one of claims 26 to 58~~ claim 26, wherein: the macromolecular template is selected from the group consisting of sulfonated polyanilines or derivatives thereof, sulfonated polystyrenes or derivatives thereof, dextran sulfate, calixarenes, cyclodextrins and derivatives thereof, synthetic tanning agents based upon sulfonated polycondensation products derived from aromatic sulfonic acids or sulfones and formaldehyde, synthetic tanning agents based upon polyacrylic-acid or salts or esters thereof, polypropylene oxide polyurethane shrinkproofing polymers containing reactive carbamoyl sulfonate groups, sulfonated polypyrroles or derivatives thereof, sulfonated polythiophenes or derivatives thereof, and copolymers or mixtures of any of the above; and

the conductive polymer is selected from the group consisting of polyaniline, polypyrrole, polythiophene, polyphenyl mercaptan polyindole, polycarbazole or derivatives or a copolymer or combination thereof.

60. (Currently Amended) An article formed partly or entirely from the electroconductive textile of ~~any one of claims 1 to 25~~ claim 1.

61. (Currently Amended) An article formed partly or entirely from the electroconductive textile produced by the method of ~~any one of claims 26 to 59~~ claim 26.

62. (Currently Amended) The article of claim 60 ~~or claim 61~~, wherein the article is selected from gloves, car seats, heating panels for car seats, protective clothing, hosiery, apparel items, footwear, headgear, strange gauges, energy storage devices and energy conversion devices.